



# City of Calistoga Electric Vehicle Charging Stations - Summary

Updated 12/07/20222

**Existing EV charging Stations:** The US Department of Energy provides a map with descriptions of all EV charging stations at the following link:  
[https://afdc.energy.gov/fuels/electricity\\_locations.html#/find/nearest?fuel=ELEC&location=94515&ev\\_levels=all](https://afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC&location=94515&ev_levels=all)

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## Alternative Fuels Data Center

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### Electric Vehicle Charging Station Locations

Find electric vehicle charging stations in the United States and Canada. For Canadian stations in French, see [Natural Resources Canada](#).

Public Stations | Advanced Filters | Fuel Corridors | U.S. and Canada

94515 | Electric | Charger Types: Level 2 | Connectors: All | Map a Route

- A** Mount View Hotel & Spa - Tesla Destination  
1457 Lincoln Ave  
Calistoga, CA 94515  
Level 2
- B** FIRE DEPT CALISTOGA  
1113 Washington St  
Calistoga, CA 94515  
Level 2
- C** Calistoga Spa Hot Springs - Tesla Destination  
1005 Washington St  
Calistoga, CA 94515  
Level 2
- D** Dr Wilkinson's Hot Springs Resort - Tesla

Map labels: A, B, C, D, E, F, G, H, I

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All of the EV charging stations within the City limits are Level 2, including the City owned dual port charger at the Fire Station.

## **Current City Projects:**

### **Community Center Parking Lot and Community Pool Parking Lot:**

The City is in the final design phase to install three (3) Level 2 EV charging stations; one dual-port plus one single-port at the Community Center and one dual-port at the Community swimming pool.

### **Silverado Trail Gateway Project:**

When funded and constructed this project will include a dual port Level 2 EV charging station.

## **Grants and Incentives:**

### **Bay Area Air Quality Management District (BAAQMD):**

The Bay Area Air Quality Management District (BAAQMD) offers grants through its **CHARGE!** Program. The City recently submitted an application to install three (3) Level 2 EV charging stations; one dual-port plus one single-port at the Community Center and one dual-port at the Community swimming pool. The grant will provide **\$11,000**. The total construction cost including construction management is estimated at **\$90,000**.

### **MCE:**

MCE is a not-for-profit public agency, local energy provider, that has set the standard for clean energy in our communities since 2010. We offer more renewable power at stable rates, significantly reducing energy-related greenhouse emissions and reinvesting millions of dollars in local energy programs. MCE provides electricity service and cutting-edge energy programs to more than one million residents and businesses in 37 member communities across four Bay Area counties: Contra Costa, Marin, Napa, and Solano.

**MCE EV Charging Rebate:** This is for workplace or multifamily properties. MCE's electric vehicle (EV) charging rebate helps you save significantly on hardware and installation costs, and provides you with technical assistance to make your project a reality. It provides:

- \$3,000 per Level 2 (L2) charging port for 2-20 ports per site + Additional \$500 per charging port with Deep Green 100% renewable energy
- \$750 per Level 1 (L1) charging port for 4-40 ports (up to \$30,000) per site + Additional \$125 per charging port with Deep Green 100% renewable energy
- Technical assistance
- Educational materials for employees and renters to learn about EVs, charging, and available rebates
- May be stacked with other rebates

The MCE EV charging rebate will provide **\$7,000** for the Community Center and Community Pool EV charging stations project.

**MCE Residential EV Rate Plan:** The MCE residential EV rate (EV2) can lower your electricity costs if you charge during off-peak times of the day when rates are lower. EV2 rates apply to your household's entire electricity usage, not only your EV charging.

**California Energy Commission (CEC):**

**California EV Infrastructure Program (CALeVIP) Inland Counties Incentive**

**Project:** Provides up to \$3,500 per L2 charging port, with an additional \$500 for sites in a designated disadvantaged or low-income community, and an additional \$2,000 for multifamily properties from the California EV Infrastructure Program (CALeVIP). The California Electric Vehicle Infrastructure Project (CALeVIP) addresses regional needs for electric vehicle (EV) charging infrastructure throughout California while supporting state goals to improve air quality, combat climate change and reduce petroleum use.

This incentive is being investigated. If approved, it would provide **\$20,000** for the Community Center and Community Pool EV charging project.

Funded by the [California Energy Commission \(CEC\)](#) and implemented by the [Center for Sustainable Energy \(CSE\)](#), CALeVIP provides incentives for EV charger installations and works with local partners on projects that support regional EV needs for Level 2 and direct current fast charging (DCFC). These statewide efforts provide a streamlined process for cost-effective charger installations that can reduce significant gaps in charging availability.

The Center for Sustainable Energy (CSE) administers the largest EV infrastructure incentive program of its kind in the nation: the California Electric Vehicle Infrastructure Project (CALeVIP).

CALeVIP works with local governments and community partners to incentivize Level 2 and DC fast chargers at businesses, workplaces, apartment buildings, condominiums and public agencies. CALeVIP is designed with a goal of at least 50% of incentives reaching low-income and/or disadvantaged communities. Thirteen regional projects, customized to local needs and priorities, have been launched in 36 counties.

The project is funded by a \$200 million block grant from the California Energy Commission (CEC) and \$40 million from community partners recruited by CSE. In 2021, the CEC awarded CSE up to \$250 million in additional funding to continue the work.

**California EV Infrastructure Program (CALeVIP) Golden State Priority Project:**

Provides funding for DC Fast Chargers Level 3. However, Napa County is not included in the 2023 funding (see below).

# Golden State Priority Project

DC FAST CHARGERS (DCFC)
 EASTERN AND CENTRAL CALIFORNIA
 UP TO \$100,000 PER ACTIVE CONNECTOR

## Available Funding

Application Window Opens: **January 24, 2023**

DC fast charger rebates will be available for eligible sites in two regions.



### CENTRAL REGION COUNTIES

Rebate Funding: \$10 million

- Alameda
- Contra Costa
- Marin
- Monterey
- San Benito
- San Francisco
- San Luis Obispo
- San Mateo
- Santa Barbara
- Santa Clara
- Santa Cruz
- Ventura

### EASTERN REGION COUNTIES

Rebate Funding: \$20 million

- Alpine
- Amador
- Calaveras
- Fresno
- Imperial
- Inyo
- Kern
- Kings
- Madera
- Mariposa
- Merced
- Mono
- Riverside
- San Bernardino
- San Joaquin
- Stanislaus
- Tulare
- Tuolumne

**Note:** Funding for additional regions may become available in future Golden State Priority Project (GSPP) application windows, based on availability of additional rebate funds. Funds that go unused in the first GSPP application window may be used to fund subsequent GSPP application windows.

CALeVIP's mission is to deploy electric vehicle charging stations quickly and efficiently to help meet California's zero-emission vehicle goals. The Golden State Priority Project (GSPP) provides rebates for purchasing and installing eligible direct current fast chargers in the eastern and central regions of California - with a total of \$30 million in available incentive funds from the California Energy Commission (CEC).

**Funding is only available for sites located in disadvantaged community (DAC) or low-income community (LIC) census tracts.**

Not sure if your site is in a DAC/LIC census tract? Look up your address using the California Climate Investments [Priority Populations Map](#).

**Calistoga Census Tract: 6055202000**

|   |            |
|---|------------|
| Disadvantaged Communities   | No         |
| <b>Low-income Communities</b>                                       | <b>Yes</b> |
| Low-income Communities within 1/2 mile of Disadvantaged Communities | No         |
| Low-income Households within 1/2 mile of Disadvantaged Communities  | No         |

**Eligible Rebates for Direct Current Fast Chargers (DCFCs)**

Rebates for eligible equipment may equal **up to 50%** of the project's total approved costs subject to the rebate caps listed.

| Guaranteed Output per Active Connector | Rebate Caps per Active Connector |
|--|----------------------------------|
| 150kW - 274.99kW                       | \$55,000                         |
| 275kW+                                 | \$100,000                        |

## **Background Information EV Chargers**

**ADA Compliance:**

The California building code and State Architects Office provide standards for ADA compliance of EV charging facilities.

- 1 to 4 EV parking spaces require 1 van accessible space. The EV ADA accessible spaces do not replace standard (non-EV) ADA accessible spaces.
- While an accessible EV space is designed for accessibility, its use is available to everyone and not limited to those with access license plates or placards

**Cost Estimate for Level 2 Dual-Port EV Charging Station**

- ChargePoint Level 2 Dual-Port Charging Station \$12,400 (includes 5-year cloud plan subscription and support)
- Installation (assuming existing electric service is adequate) \$15,300
- Total = \$27,700 not including construction management

## Types of EV Chargers per FORBES On-Line

| EV Charging Speed on Level 1, 2, 3 Chargers |                |                      |                          |
|---|----------------|----------------------|--------------------------|
| Charging Level                              | Power Delivery | Range Added Per Hour | Time to Charge 60 kWh EV |
| Level 1                                     | 1-1.4 kW       | 3-5 miles            | 30-40 hours              |
| Level 2                                     | 3.9-19.2 kW    | 12-80 miles          | 2.5-4.5 hours            |
| Level 3                                     | 24-300 kW      | 75-1,200 miles       | 30-40 minutes            |

Time to Charge EV with a 60-kWh battery is the time to raise the battery's charge level from 10% to 80%

*Range-added time for Level 3 chargers is often described in miles per minute (not hour) because of the speed (3-20 miles of range added per minute in this example). Level 3 charging rates (speeds) can vary considerably by vehicle, depending on the EV's ability to accept power.*

### **Level 2 Charging: 208-Volt to 240-Volt**

Connectors Used: J1772, Tesla

Charging Speed: 12 to 80 Miles Per Hour

Locations: Home, Workplace & Public

Level 2 charging is the most commonly used level for daily EV charging. Level 2 charging equipment can be installed at home, at the workplace, as well as in public locations like shopping plazas, train stations and other destinations. Level 2 charging can replenish between 12 and 80 miles of range per hour, depending on the power output of the Level 2 charger, and the vehicle's maximum charge rate.

Most BEV owners choose to install Level 2 charging equipment at their residence, because it charges the vehicle up to 10 times faster than Level 1 charging. Charging from a Level 2 source usually means the vehicle will be completely charged overnight, even if you plugged with a nearly empty battery.

Level 2 chargers can deliver up to 80 amps of power. But that requires a 100-amp 208-240V dedicated circuit and a heavy, costly supply line from the breaker box. Most owners will be well served choosing a 40-amp charger that can deliver 9.6 kW to the EV. A 48-amp charger can charge slightly faster at 11.5 kW, but requires a heavier gauge wire and the charger must be hardwired to comply with the NEC code. Therefore, 48-amp chargers can cost significantly more than a 40-amp unit and offer only marginally faster charging.

### **Level 3 Charging: 400-Volt to 900-Volt (DC Fast Charge & Supercharging)**

Connectors Used: Combined Charging System (Combo), CHAdeMO & Tesla

Charging Speed: 3 to 20 Miles *Per Minute*

Locations: Public

Level 3 charging is the fastest type of charging available and can recharge an EV at a rate of 3 to 20 miles of range per minute. Unlike Level 1 and Level 2 charging that uses alternating current (AC), Level 3 charging uses direct current (DC). The voltage is also much higher than Level 1 & 2 charging, which is why you don't see level 3 chargers installed at home. Very few residential locations have the high-voltage supply that is required for level 3 charging.

Additionally, DC Fast Chargers cost tens of thousands of dollars. So even if your residence has 400-volt electricity service, the cost to install the charger would most likely cost more than your EV. Tesla calls their Level 3 chargers Superchargers; others are called DC Fast Chargers. Current [Nissan](#) EVs use a third specification, CHAdeMO.

### **City of St Helena DC Fast Charging Stations**

The City only provided the dedicated parking spaces. EVgo provided all equipment and is responsible for all operations. A request was made to EVgo to install a similar charging station in Calistoga. They responded saying that Calistoga did not meet the site selection criteria.



### **Types of EV Charging Stations (US Dept Energy)** **Charging Infrastructure Terminology**

The charging infrastructure industry has aligned with a common standard called the [Open Charge Point Interface](#) (OCPI) protocol with this hierarchy for charging stations: location, electric vehicle supply equipment (EVSE) port, and connector. The Alternative Fuels Data Center and the [Station Locator](#) use the following charging infrastructure definitions:

- **Station Location:** A station location is a site with one or more EVSE ports at the same address. Examples include a parking garage or a mall parking lot.
- **EVSE Port:** An EVSE port provides power to charge only one vehicle at a time even though it may have multiple connectors. The unit that houses EVSE ports is sometimes called a charging post, which can have one or more EVSE ports.

- **Connector:** A connector is what is plugged into a vehicle to charge it. Multiple connectors and connector types (such as CHAdeMO and CCS) can be available on one EVSE port, but only one vehicle will charge at a time. Connectors are sometimes called plugs.

## Charging Equipment

Charging equipment for PEVs is classified by the rate at which the batteries are charged. Charging times vary based on how depleted the battery is, how much energy it holds, the type of battery, and the type of charging equipment (e.g., charging level and power output). The charging time can range from less than 20 minutes to 20 hours or more, depending on these factors. Charging the growing number of PEVs in use requires a robust network of stations for both consumers and fleets.

For information on currently available charging infrastructure models, see the Electric Drive Transportation Association's [GoElectricDrive website](#) and [Plug In America's Get Equipped resource](#), which include information on charging networks and service providers.

When [choosing equipment](#) for a specific application, many factors, such as networking, payment capabilities, and [operation and maintenance](#), should be considered.

### Level 1 Charging 2 to 5 miles of range per 1 hour of charging



J1772 connector

**Alternating Current (AC)** Level 1 equipment (often referred to simply as Level 1) provides charging through a 120 volt (V) AC plug. Most, if not all, PEVs will come with a Level 1 cordset, so no additional charging equipment is required. On one end of the cord is a standard **NEMA** connector (for example, a NEMA 5-15, which is a common three-prong household plug), and on the other end is an SAE J1772 standard connector (often referred to simply as J1772, shown in the above image). The J1772 connector plugs into the car's J1772 charge port, and the NEMA connector plugs into a standard **NEMA** wall outlet. Note that Tesla vehicles have a unique connector. All Tesla vehicles come with a J1772 adapter, which allows them to use non-Tesla charging equipment.

Level 1 charging is typically used when there is only a 120 V outlet available, such as while charging at home, but can easily provide charging for all of a driver's needs. For example, 8 hours of charging at 120 V can replenish about 40 miles of electric range for a mid-size PEV. As of 2020, [less than 5% of public EVSE ports in the United States were Level 1](#).



## Level 2 Charging **10 to 20 miles of range per 1 hour of charging**



J1772 connector

AC Level 2 equipment (often referred to simply as Level 2) offers charging through 240 V (typical in residential applications) or 208 V (typical in commercial applications) electrical service. Most homes have 240 V service available, and because Level 2 equipment can charge a typical PEV battery overnight, PEV owners commonly install it for [home charging](#). Level 2 equipment is also commonly used for [public and workplace charging](#). This charging option can operate at up to 80 amperes (Amp) and 19.2 kW. However, most residential Level 2 equipment operates at lower power. Many of these units operate at up to 30 Amps, delivering 7.2 kW of power. These units require a dedicated 40-Amp circuit. As of 2020, [over 80% of public EVSE ports in the United States were Level 2](#).

Level 2 charging equipment uses the same J1772 connector that Level 1 equipment uses. All commercially available PEVs have the ability to charge using Level 1 and Level 2 charging equipment.

Tesla vehicles have a unique connector that works for all their charging options, including their Level 2 Destination Chargers and chargers for home. All Tesla vehicles come with a J1772 adapter, which allows them to use non-Tesla charging equipment.

## DC Fast Charging Level 3



CCS connector



CHAdeMO connector



Tesla connector

**Direct-current (DC)** fast charging equipment (typically 208/480 V AC three-phase input) enables rapid charging along heavy traffic corridors at installed stations. As of 2020, [over 15% of public EVSE ports in the United States were DC fast chargers](#). There are three types of DC

fast charging systems, depending on the type of charge port on the vehicle: SAE Combined Charging System (CCS), CHAdeMO, and Tesla.

The **CCS** connector (also known as J1772 combo) is unique because a driver can use the same charge port when charging with Level 1, Level 2, or DC fast equipment. The only difference is that the DC fast charging connector has two additional bottom pins.

The **CHAdeMO** connector is the most common of the three connector types.

**Tesla** vehicles have a unique connector that works for all their charging levels including their fast charging option, called a Supercharger. Although Tesla vehicles do not have a CHAdeMO charge port and do not come with a CHAdeMO adapter, Tesla does sell an adapter.

### **Types of Chargers USDE**

Per USDE Costs doc 2015

#### **EVSE Charging Types**

**AC Level 1 EVSE**, commonly referred to as Level 1, provides charging through a 120-volt (V) alternating current (AC) circuit and requires a dedicated branch circuit. Most plug-in electric vehicles (PEVs) come with a Level 1 EVSE cordset. One end of the cord is a standard, three-prong household plug. The other end is an SAE J1772 standard connector that plugs into the vehicle. Level 1 EVSE that can be wall mounted or pedestal mounted at parking spots is also available. Depending on the battery and vehicle type, Level 1 charging adds about **2 to 5 miles of range per hour of charging time.**

**AC Level 2 EVSE**, commonly referred to as Level 2, provides charging through a 240V (typical in residential applications) or 208V (typical in commercial applications) electrical service. Level 2 EVSE requires installation of a dedicated circuit of 20-80A, in addition to the charging equipment. Most Level 2 EVSE uses a dedicated 40A circuit. As with Level 1 equipment, Level 2 equipment uses the SAE J1772 connector. Depending on the vehicle and circuit capacity, **AC Level 2 adds about 10-20 miles of range per hour of charging time.**

**DCFC (Direct Current Fast Charger)** enables rapid charging and is generally located at sites along heavy traffic corridors and at public fueling stations. It is sometimes called DC Level 2 or DC fast charging. Some DC fast charging units are designed to use 480V input, while others use 208V input. PEVs equipped with either a CHAdeMO or SAE DC fast charge receptacle can add **50 to 70 miles of range in about 20 minutes.**

#### **PEV Charging Components**

**Charger\*** – An electrical device that converts alternating current energy to regulated direct current for replenishing the energy of an energy storage device (i.e., battery), and may also

provide energy for operating other vehicle electrical systems. A PEV charger is located on the vehicle.

Cord – An EVSE component that transmits electricity from the control box to the connector.

Cordset – The cordset provides AC Level 1 charging and includes the connector, cord, control box, and standard three prong household plug (NEMA 5-15 connector). The cordset can connect a vehicle to an electrical outlet that is rated for the appropriate voltage.

Connector\* – A conductive device that, by insertion into a vehicle inlet, establishes an electrical connection to the electric vehicle for the purpose of transferring energy and exchanging information. This is part of the coupler.

Coupler\* - A mating vehicle inlet and connector set.

EVSE (electric vehicle supply equipment) consists of all the equipment needed to deliver electrical energy from an electricity source to charge a PEV's battery. It communicates with the PEV to ensure that an appropriate and safe flow of electricity is supplied.

Handshake – A colloquial term for the communication protocol between the EVSE and the vehicle. The handshake ensures the connector is not energized until it is inserted in the inlet and the proper communication has taken place between the vehicle and EVSE.

Vehicle inlet/receptacle\* is the device on the electric vehicle into which the connector is inserted for the purpose of transferring energy and exchanging information. \*SAE Definitions